

### **REMARKS**

In the foregoing amendment, claims 1, 14 and 16 have been amended. Now pending in the application are claims 1-19, of which claims 1, 14, and 16 are independent. The following comments address all stated grounds of rejection. Applicants urge the Examiner to pass the claims to allowance in view of the remarks set forth below.

#### **Claim Amendments**

Applicants have amended claims 1, 14 and 16 to clarify the scope of the claimed invention. In particular, claims 1, 14 and 16 have been amended to recite that the claimed invention *avoids a trap performing at least one of a register window spill operation or a register window fill operation*. Support for the amended claims can be found on page 2, lines 1-9. No new matter has been introduced.

#### **Claim Rejections - 35 U.S.C. §102**

Claims 1-2 and 8-19 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,631,452 ("Lin"). Applicants respectfully traverse this rejection for the following reasons.

Independent claim 1 recites a microprocessor that includes a detector for detecting an imminent register window overflow or underflow condition. The microprocessor also includes an instruction generator responsive to the detector for generating an instruction to *avoid a trap performing at least one of a register window spill operation or a register window fill operation* responsive to the condition that is detected as imminent. Independent claims 14 and 16 recite an engine and a method, respectively, and include similar limitations.

Applicants respectfully submit that the cited prior art reference fails to disclose each and every element of the claimed invention. Applicants submit that Lin fails to disclose that the microprocessor *avoid a trap performing at least one of a register window spill operation or a register window fill operation*, as recited in claims 1, 14 and 16.

Lin discloses mandatory and speculative spill/fill operations. In Figure 6 of the Lin reference, the mandatory spill/fill operation (MOP) is performed when RSE-related instructions (RI) are monitored and registers are not available in the register stack. *See* Lin, Column 8, lines 58-65. The speculative spill/fill operation is performed when RI is not monitored and bandwidth (BW) is available. In the mandatory spill/fill operation, the processor is stalled until the mandatory spill/fill operation is completed. *See* Lin, Column 3, lines 2-5. Lin discloses that the speculative spill/fill operations *reduce the need for the mandatory spill/fill operations*.

Lin, however, does not disclose that the processor *avoids a trap performing at least one of a register window spill operation or a register window fill operation*. In the Lin reference, the need for the mandatory spill/fill operation is reduced by performing the speculative spill/fill operation. Although the need for the mandatory spill/fill operation is reduced in Lin, the mandatory spill/fill operation is still required if RSE-related instructions (RI) are monitored and registers are not available in the register stack. Lin does not avoid the mandatory spill/fill operation.

In the Office Action, the Examiner notes that the speculative spill/fill operation reduces *stalls* in the Lin reference. The Examiner also notes that the claimed invention does not recite that the microprocessor avoids *stalls*. In the foregoing claim amendments, Applicants have amended independent claims 1, 14 and 17 to provide further limitations for a trap. The amended independent claims 1, 14 and 17 now recite that the microprocessor *avoids a trap performing at least one of a register window spill operation or a register window fill operation*. Lin does not disclose that the processor *avoids a trap performing at least one of a register window spill operation or a register window fill operation*, as recited in the claimed invention.

In light of the foregoing claim amendments and arguments, Applicants submit that Lin fails to disclose each and every element of claims 1, 14 and 16. Applicants therefore request the Examiner to reconsider and withdraw the rejection of claims 1-2 and 8-19 under 35 U.S.C. §102, and pass the claims to allowance.

Claim Rejections - 35 USC §103

Claims 3-7 are rejected under 35 U.S.C §103(a) as being unpatentable over Lin. Applicants respectfully traverse this rejection for the following reasons.

Claims 3 and 6 depend upon claim 1 and claims 4-5 and 7 depend on claims 3 and 6, respectively.

Applicants respectfully submit that the cited prior art reference fails to teach or suggest all of the limitations of the claimed invention. Applicants submit that Lin fails to teach or suggest that the microprocessor *avoids a trap performing at least one of a register window spill operation or a register window fill operation*, as recited in claim 1.

Lin teaches speculative spill/fill operations to reduce the need for the mandatory spill/fill operations. Although the need for the mandatory spill/fill operations is reduced in Lin, Lin still needs the mandatory spill/fill operations when RI is monitored and registers are not available in the register stack. Lin does not teach that the processor avoid the mandatory spill/fill operation. Lin does not teach that the processor *avoid a trap performing at least one of a register window spill operation or a register window fill operation*, as recited in claim 1.

Additionally, Applicants submit that Lin fails to teach or suggest that the detector examines the instructions in the cache, as recited in claims 3 and 6. In the Office action, the Examiner notes that the instruction in the cache can be examined when they make their way into the pipe line and the execution unit, which is taught in Lin. As the Examiner notes in the Office Action, Lin teaches monitoring instructions, such as RI, in the pipe line and the execution unit. Lin does not teach that the detector examines the instructions in the cache.

In light of the foregoing claim amendment and arguments, Applicants submit that Lin fails to teach or suggest all of the limitations of claims 3-7. Applicants therefore request the Examiner to reconsider and withdraw the rejection of claims 3-7 under 35 U.S.C. §103, and pass the claims to allowance.

Conclusion

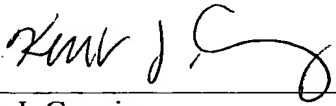
In light of the aforementioned arguments, Applicants contend that each of the Examiners rejections has been adequately addressed and the pending application is in condition for allowance.

Applicant believes no fee is due with this statement. However, if a fee is due, please charge our Deposit Account No. 12-0080, under Order No. SMQ-023RCE from which the undersigned is authorized to draw.

Should the Examiner feel that a telephone conference with Applicants' attorney would expedite prosecution of this Application, the Examiner is urged to contact the Applicants' attorney at (617) 227-7400.

Respectfully submitted,  
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